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SCIENCE NEWS LETTER

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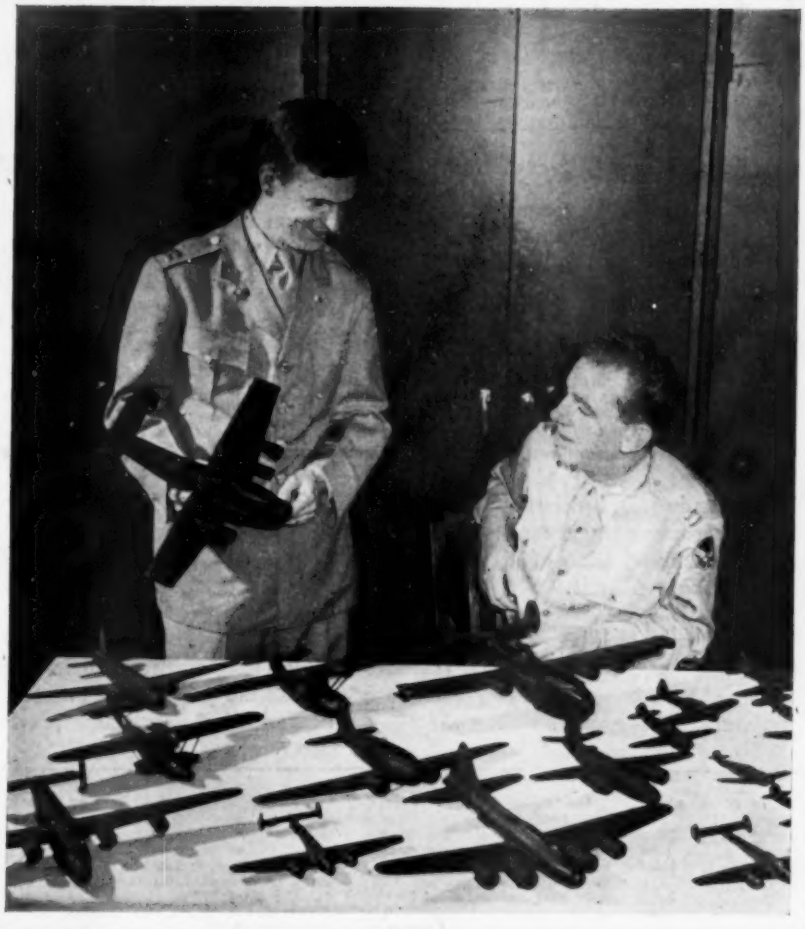
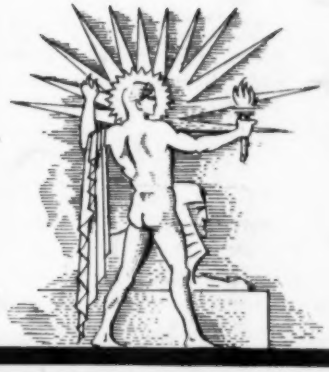
THE WEEKLY SUMMARY OF CURRENT SCIENCE •





August 8, 1942

To Aid Observers

See Page 88

A SCIENCE SERVICE PUBLICATION

TEC W-530

Do You Know?

Immunity against *mildew* is imparted to tents if the canvas is treated with copper naphthenate.

The Army has re-designed its five-gallon *water can*, saving 70% to 80% in shipping space.

The *elm leaf beetle* is native to Europe; it was introduced into America in the nineteenth century.

An agricultural experiment station reports 95% effectiveness of ammonium sulfamate solutions in eliminating *poison ivy*.

Lubricants on the propeller shaft of a torpedo must not wash off in salt water, or deteriorate during the long period when the "tin fish" may lie idle before launching.

Portable tents for Army post commands are equipped with "light trapped" ventilators and canvas flaps over the windows, so they can be used at night under *blackout* conditions.

One of the richest mines of *salvaged metal* in England has been from bombed sites, $4,000,000 worth of bricks and metal having been removed from debris during the past year.

White and very pale colored houses are more highly visible by moonlight than neutral grays, bluish oxide reds, ultramarine, and several other colors now recommended for *air raid safety*.

Question Box

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ANTHROPOLOGY

Who are the Uzbeks? p. 88.

BOTANY

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FORESTRY

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GENERAL SCIENCE

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ICHTHYOLOGY

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MEDICINE

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METALLURGY

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Why are scientists analyzing dust? p. 86.

RESOURCES

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ZOOLOGY

How hot is it where the polar bears come from? p. 94.

Most articles which appear in SCIENCE NEWS LETTER *are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.*

Thickening and thinning of *oil* due to temperature changes can now be partly controlled by addition of a chemical obtained from oil itself.

Stabilizers which keep guns on an even keel, while the tank on which they are mounted bounces over rough ground, are hydraulically operated.

Odorless paints, suitable for painting plaster, brick, cinder blocks, concrete blocks, and similar surfaces, are made with alkyd emulsions.

A mercury "bomb," exploded in *fluorescent lamps* during their manufacture, ejects the exact amount of mercury needed, eliminating large previous waste.

SCIENCE NEWS LETTER

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PUBLIC HEALTH

Yellow Fever Vaccinations Now Safe From Jaundice Peril

Vaccine Made With Water Now Used in Place of Kind Containing Blood Serum Believed To Blame for Cases

DANGER of jaundice breaking out in the Army among troops vaccinated against yellow fever is now over, the Surgeon General feels sure. Full information about the jaundice outbreak is now released for the first time, although this and other press services and newspapers of the nation have known about the outbreak for some time but withheld the information at the request of Army authorities, pending results of the scientific investigation which started when the first cases occurred.

Contrary to rumors circulating for some weeks, no case of yellow fever has occurred in any of the troops. The sickness was catarrhal jaundice, an ailment that occurs in civil life and for which no specific germ cause has been identified.

Since March 1, 1942, there have been 28,585 cases of catarrhal jaundice in some of the men vaccinated against yellow fever. There were 62 deaths. This is a rate of one death to each 461 men who got sick, not one in 461 of all vaccinated. The numbers of deaths and of cases of jaundice were not large enough to affect the war effort nor were they large enough to change the low death and sickness rates for the Army as a whole.

Jaundice occurred only in men vaccinated with certain batches of yellow fever vaccine. The vaccine was made from chick embryo pulp which had been suspended in normal human blood serum. This type of vaccine had been used for a million vaccinations before the jaundice cases developed among troops getting the vaccine.

The human blood serum was used because it keeps the vaccine active longer when it is stored before use. The unidentified germ of catarrhal jaundice may have gotten into certain batches of vaccine from this serum. The point is not yet definitely proved, but acting on the possibility, the Surgeon General ordered all yellow fever vaccine for the Army to be prepared with water instead of the human serum.

This change was made April 15. Cases of jaundice have been definitely decreasing in numbers for the last three or four weeks. Peak of the outbreak apparently came during the week ending June 20, when 2997 admissions were reported during the week. The peak in number of cases occurred after the vaccine had been changed because it takes some time for the disease to develop. The cases reported were among men who had been given the human serum vaccine before April 15.

Science News Letter, August 8, 1942

PUBLIC HEALTH

Shortage of Narcotics Decreases Addiction

SHORTAGE of smuggled narcotics due to war conditions has caused a decrease in addiction in the United States and an increase in desperate attempts to steal the drugs from drug stores and warehouses, the Bureau of Narcotics announces.

Effective control measures, together with restricted shipping facilities, have forced many addicts to take cures because illicit narcotic prices are prohibitive. When available, the cost of raw opium is estimated at nearly $600 per pound. One form of morphine sold at $4 for about 1/300 of an ounce (1½ grains).

Illicit heroin, another opium derivative, could usually be obtained only 5% pure, even before the war. Now the "heroin" available in the underworld is mostly milk sugar, often so highly diluted as to be almost valueless for addiction use.

Japs have been active in unlawfully importing these death-dealing drugs into the United States, but are now reported busy with other matters.

By the end of last year smuggled morphine seemed to have practically disappeared from illicit traffic, the Bureau of Narcotics reports.

Possible legal sale of narcotics which could be used for addiction purposes, is further hampered by new laws or amendments passed in Maine, Iowa, Minnesota, Montana, New York, Oregon, Rhode Island, South Dakota, and Wisconsin during last year. These laws also help to conserve our limited supply of opium derivatives which constitute some of our most useful drugs when properly administered by a physician.

Science News Letter, August 8, 1942

LAND BATTLESHIP

The new M-4, 28-ton (medium) tank which has a strong welded hull and superior fire power, due to 75-mm. gun mounted in turret.

METALLURGY

Scientists Pool Knowledge, Report Data to WPB

Over a Hundred Reports Already Submitted on Metals And Minerals; Indicate Direction for New Research

SCIENTISTS of the United States are making their knowledge and experience available for the war effort through committees of the National Research Council of the National Academy of Sciences. A great stock of information already in existence has been thus pooled, and has been placed on record in well over a hundred reports furnished to the War Production Board and its predecessor organizations. Directions which new research should take have also been indicated.

Especially important has been the work of the Metals and Minerals Advisory Committee, of which Clyde Williams, director of Battelle Memorial Institute, Columbus, Ohio, is chairman. This committee has already turned in well over a hundred reports. About half of them are on metals substitution and conservation, a little less than half on ferrous minerals and ferro-alloys, with several additional reports on tin smelting and reclamation and on nonmetallic minerals.

A very considerable proportion of the reports are concerned with three "bottleneck" metals, aluminum, magnesium and manganese. The first two are basic materials for aircraft, the third is a key material in modern steel-making. With all three, our present difficulties arise largely from the fact that before the war the respective industries naturally utilized only the highest-grade sources, which were most easily worked. Now, however, these "cream" sources are not sufficient to meet the enormously expanded demand, and scientists are called upon to tell what may be done about realizing values from some of the "skim-milk" ores.

Other investigations of the committee range through the whole alphabet of the minerals, from antimony and asbestos to zinc and zircon. In some cases, rarer and more costly metals may become replacements for those that are more abundant and cheaper in normal times; as in the substitution of lead-silver solder for the old familiar lead-tin solder, thus releasing tin for use where it is more urgently needed.

This set-up of a national clearing-house for scientific ideas and information in a nation at war continues a tradition that goes back to the administration of President Lincoln. In 1863 he chartered the National Academy of Sciences as a means of making the then existing scientific resources of the country available for the use of the federal government.

During the first World War the National Research Council was organized as a committee of the Academy, to carry on the same kind of work in the vastly more highly developed fields of science that had come into being since Reconstruction days. The Council continued in existence during the interim between the first and second World Wars, and now again attacks the task, with greatly expanded personnel and facilities.

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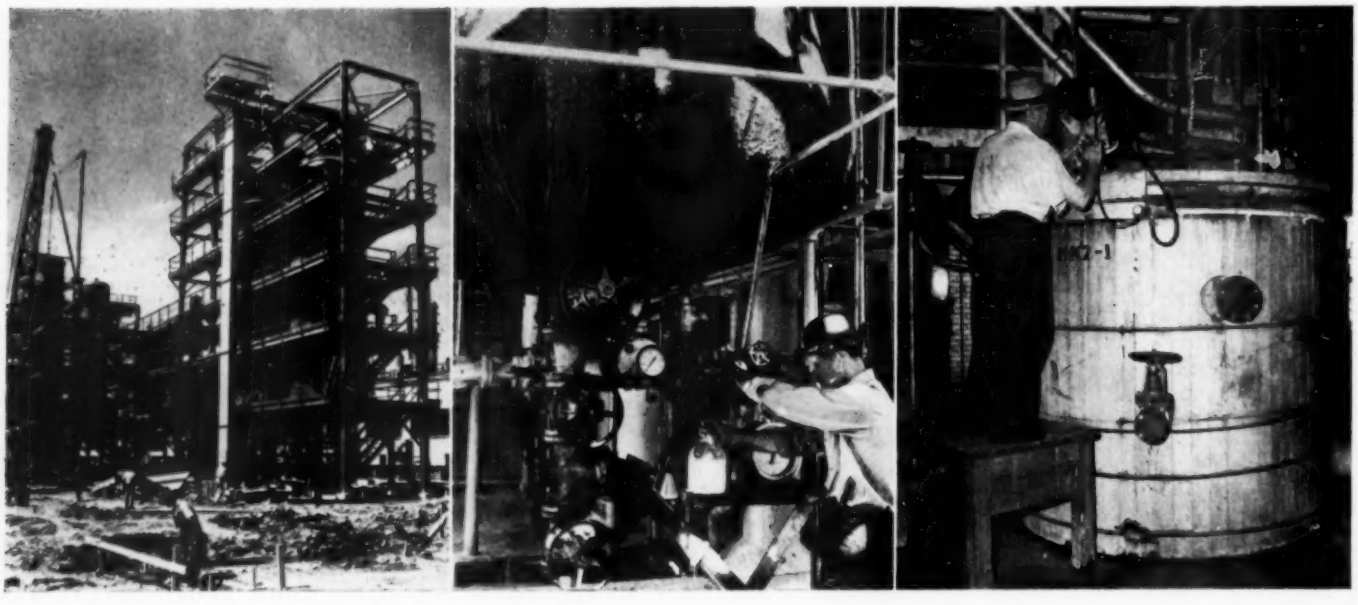
Wild mules found wandering in the jungles of New Guinea are being broken in, by Australian horsemen, in their native python-infested valleys.

Statisticians have calculated that nearly 5% of the American population, or 6,000,000 people, will at some time during life be legally committed as *insane*.

SYNTHETIC

These photographs and those on the facing page show steps in the process of making artificial rubber from petroleum. At left is part of a new butadiene plant now under construction. Next is the huge reactor in which butadiene is polymerized to form a latex-like fluid—the white stuff being drawn off in the bottle. At right, the "latex" is being coagulated by agitation with acids.



GENERAL SCIENCE

New Body For Promotion of Research Taking Shape in WPB

Development Committee Studies Industrial Problems Under Direction of Maury Maverick; Ask $100,000,000

THE COMMITTEE on Technical Development, a new body for the promotion and correlation of research in general industrial production, is now taking shape within the War Production Board under the guidance of Maury Maverick, chief of the Bureau of Government Requirements. It is intended to operate along lines parallel to the work of the Office of Scientific Research and Development and the National Inventors Council, supplementing, though not duplicating, their efforts. An appropriation of $100,000,000 is being asked for, to finance the work of the Committee.

Associated with Mr. Maverick in the new project are a number of research men and administrators, including Dr. Charles I. Gragg and Dr. C. C. Hill, Jr., both of Donald Nelson's organization.

As the research men picture their task, it involves several separate steps for each of the industrial problems with which the country is faced today.

First is a survey of the problem itself, a determination of its magnitude and of all the factors involved that can be discovered. This is done largely by calling in groups of representative industrialists, engineers, and government and university researchers who know about various phases of the problem.

Having thus outlined a particular job, the next thing is to lay it out as a research project and final places where existing laboratory facilities will permit rapid work. This is very likely to involve a breaking down of the project into sections, and "farming out" the sections to universities and technical schools which have the necessary apparatus and personnel not yet employed on war research jobs. In this part of its work, the Committee on Technical Development would be functioning along lines analogous to those of the Smaller War Plants Corporation of WPB, in procuring the completion of jobs by subcontract.

After the laboratory research stage comes the pilot plant, where processes until then done only by spoonfuls in test-tubes are expanded to middle-sized batches—say a couple of hundred pounds—in relatively small kettles or retorts, similar to those of factories, only not so big. Here is where the jobs graduate from "pure" chemistry into engineering chemistry, where "bugs" are discovered and eliminated.

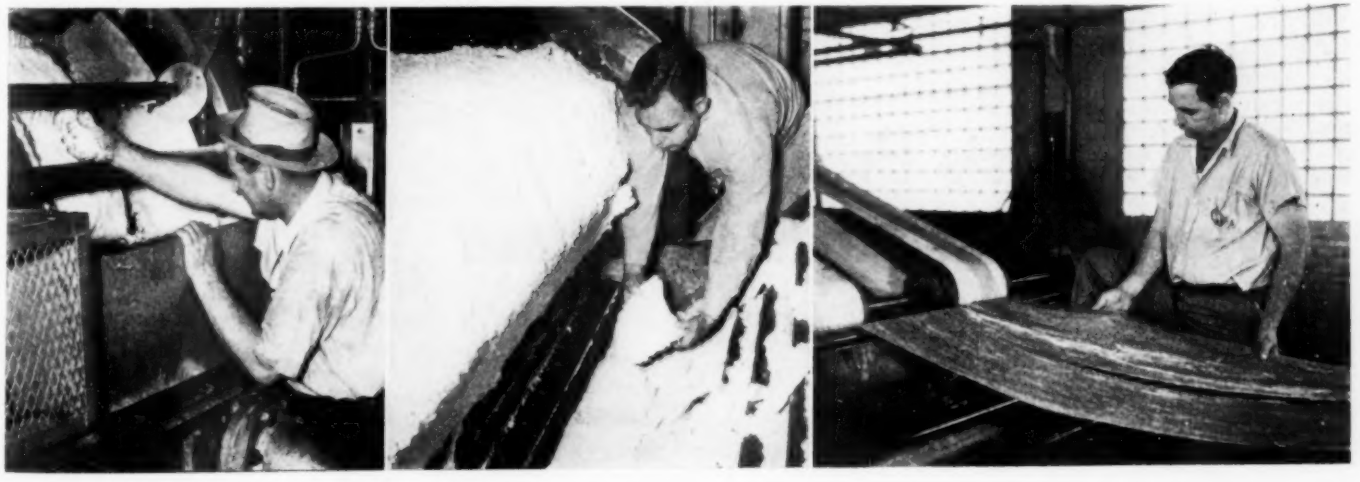
Finally, after the pilot plant has carried the task as far as it can, it goes to the full-scale industrial plant for regular commercial development. The interval between pilot plant and factory is the "slip twixt cup and lip" where many a hopeful research project has died a-borning, and been embalmed in neatly bound research reports that only gather dust on library shelves, instead of rolling dollars into bank accounts and payrolls. One of the big jobs of the Committee on Technical Development will be to help practicable research results to become practical and real in the marketplace.

Even before formal organization and financing, the Committee has made a number of beginnings. One hitherto neglected possibility of natural rubber has been turned up in the strangling-fig vines that grow wild in southern Florida and the West Indies. Little is known about it as yet; it is one of the research tasks that will have to be done from the ground up.

Agar, a vegetable jelly made from seaweed and indispensable in bacteriological and medical research, has always been imported from Japan. Small American manufactures of this substance have been of good quality but insignificant in quantity. New seaweed sources that may help ease us out of this bottleneck have been turned up on the Florida coast.

FROM SLURRY TO SHEETS

The workman (left) at one of the synthetic rubber plants of the Standard Oil Company (New Jersey) is inspecting "slurry," the "curd" produced by coagulation after it has been washed and the liquid has been squeezed out. (See photos on facing page.) The stuff is then dried. The center picture shows it as it emerges from the dryer ready to be carried on a belt to a milling machine. At right is the finished rubber sheet being slit into ribbons, later to be cut into short pieces for convenience in shipping.



Silk is still needed for certain military purposes; nylon, rayon and other substitutes have not proven wholly satisfactory. We have abundance of mulberry trees, a seed-stock of silkworms —and thousand of Japanese women in internment camps who would be glad of a chance to undertake their traditional job of unreeling the cocoons to add a little to the family income.

These are only samples of the thousands of projects awaiting formal organization of the Committee on Technical Development. The work that can be expected of it should not only aid materially in winning the war but in stabilizing the peace.

Science News Letter, August 8, 1942

PUBLIC HEALTH

Public Health Service Fighting Plague in Rodents

Concern Felt Over Reports of Large Numbers of Norway Rats in Plains States Although No Germs Found

THE NATION's health continues good, reports from state health officers to the U. S. Public Health Service show.

Only shadows on the otherwise bright health picture are caused by dysentery, meningitis, anthrax and infantile paralysis. The latter disease has caused a number of cases in Kentucky and Arkansas in recent weeks, but it is so late in the season that health authorities believe a widespread outbreak unlikely.

Texas reports the number of cases of bacillary dysentery is "very high." Of the 356 cases for the nation as a whole during the week ended July 25, 261 were reported from Texas. Virginia that same week reported 351 of the total 386 cases of dysentery of unspecified cause. The low reports from other states may mean that not all cases are being reported.

Reports of meningitis cases for some time have been higher each week than for the corresponding week of any year since 1937. Weekly totals for the nation run about 60 cases. Most of the cases are in the East, but so far the disease has not become epidemic.

A total of six cases of anthrax appeared in the latest available weekly report. The usual rate is one or two cases a week for the nation.

No human cases of plague have been reported so far this year. Anti-plague activities are being pushed strenuously by the federal health service and by California, Washington, Oregon, Montana and Idaho state health departments.

Some concern is felt over reports from the field investigators that large numbers of Norway rats have appeared along roadsides and around farm buildings in the Plains states, Kansas, Nebraska and the Dakotas. No plague germs have been found on any rodents within 200 miles of these areas, but the presence of the rats which may become a reservoir of the disease is causing some uneasiness.

Anti-plague units of the Public Health Service are vigorously searching for and destroying plague-infected ground squirrels and other rodents on and near military reservations and airfields in the West and Northwest.

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PUBLIC HEALTH

Dust Analysis Promises New Weapon Against Disease

BECAUSE of the development of an inexpensive and comparatively simple technique of analyzing dust particles, occupational diseases resulting from the inhaling of contaminating dusts may be attacked on a new front.

Research just completed in the Research Institute at the University of Oklahoma has produced the new method, known as the polarographic analysis of industrial dusts, which employs an electro-chemical method of analysis. It was developed through the cooperation of the Oklahoma state health department and the University of Oklahoma Research Institute.

The study grew out of the difficulties that the Oklahoma department of health was having in attempting to solve the cause of poisoning that was prevalent among workers in smelters of the northeastern part of the state.

The dust particles available were so small that in many cases they could scarcely be weighed on even the best analytical balances, thus making it necessary to develop a new technique. With the polarograph, scientists were able to determine the quantities of lead, cadmium, and zinc which are most detrimental to health.

In the new technique, the elements present in the dust particles are determined with the spectrograph, and the quantities of lead, zinc, and cadmium are determined with the polarograph.

With the use of a polarographic analysis, industries now have a way of measuring the quantities of toxic constituents in the air in the various parts of the plants, and may remove the possibilities of poisoning by ventilating the various parts of the plants that present a health menace.

Robert C. McReynolds, research fellow, who worked under the supervision of Prof. J. Rud Nielsen, has directed work on the project since the first of this year. He was assisted by Robert Ady of the Oklahoma state health department.

Science News Letter, August 8, 1942

MEDICINE

Age and Sex Help in Diagnosis of Lung Cancer

THE PATIENT'S age and sex may help the doctor determine whether a lung tumor is cancer or not. Dr. Alfred Goldman, of the University of California Medical School, has found.

More than 80% of lung cancers occurred in men over 40 years of age, while 75% of the benign tumors, called adenomas, occurred in women under 40, Dr. Goldman found in his two-year study.

Since X-rays and the bronchoscope do not offer adequate means of diagnosing lung cancer in its early stages, Dr. Goldman advises exploratory surgical operations in suspected cases of lung cancer, just as such operations are now performed in suspected cases of cancer within the abdomen.

Science News Letter, August 8, 1942

MEDICINE

50,000 Blood Donors Weekly Needed To Supply Quota

2,500,000 Pints of Blood Required During Next Year; Dried Plasma and Serum Albumin To Be Used for Army

ANY CIVILIANS still wondering what they can do to help the nation's war effort can step up with a pint of blood to save the life of a wounded American soldier, sailor or marine.

Blood donors are needed at the rate of 50,000 per week for the next 12 months, Chairman Norman H. Davis, of the American Red Cross, announced. The Army and Navy have requested the Red Cross to collect a new quota of 2,500,000 pints of blood within that period.

The blood collected by the Red Cross will be processed into dried plasma and serum albumin for emergency transfusions for the armed forces. The serum albumin is a recently developed blood substitute in which the Navy is especially interested because it requires less storage space than plasma.

The Red Cross until now has had to restrict the quotas of its donor centers because of the limited capacities of the laboratories processing the blood. Laboratory capacity is being rapidly expanded, however, and will, with new ones soon to be participating in the program, have a combined capacity to process at least 2,500,000 pints of blood during the next 12 months and the total may reach 3,000,000.

The blood must reach a processing laboratory within 24 hours after it is drawn. For that reason, the Red Cross has had to limit donor centers to those regions near processing laboratories. Red Cross blood donor centers for the Army and Navy now exist in the following cities: New York, Philadelphia, Baltimore, Rochester, N. Y., Buffalo, Boston, Brooklyn, Cincinnati, Cleveland, Chicago, Detroit, Pittsburgh, Indianapolis, St. Louis, Milwaukee, Los Angeles, San Francisco, and Washington, D. C.

Those who have already given blood can do so again. The average healthy man or woman can safely give blood for transfusions every three months, according to a recent report to the American Medical Association. The safe time is marked by the return to normal value of the hemoglobin, red coloring matter of the blood.

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NUTRITION

"Yes, We Have No Bananas" But Babies Need Not Suffer

Other Fruits, Such As Apples and Pears, Substitute In Youngsters' Diet; Physician Can Advise Change

"YES, we have no bananas" is so true today as to be hardly comic but babies, sick or well, need not suffer from the lack.

Reports of a bunch of bananas being rushed from New York to Montreal by air to save an infant's life, and other reports that 200 New York babies were in danger of dying of celiac disease because of the banana shortage prompted an inquiry of child specialists about the importance of bananas in infant diets.

Bananas are a great asset but are not essential for the cure of celiac disease, according to experts at the Harriet Lane Home for Invalid Children, Johns Hopkins Hospital, Baltimore.

Other fruits, such as strained apples, strained apricots, and strained pears can be used instead of bananas and are now being used at this world-renowned hospital, apparently satisfactorily.

The value of these other fruits instead of bananas for babies with celiac disease was shown some years ago by Prof. Guido Fanconi, of the University of Zürich, Switzerland. Physicians at Harriet Lane have so far been able to get bananas for sick babies, but knowing that the supplies are dwindling because war is cutting off shipments from Central America, they have started using the fruits which Dr. Fanconi found satisfactory in the treatment of celiac disease.

An amino acid-milk preparation is now on the market and this also is being used at Harriet Lane with apparently good results. In fact the physicians there, although cautious about saying much until they have had more experience with it, believe it has great potentialities.

Celiac disease, an authority of the U. S. Children's Bureau explained, is a chronic intestinal disease in which the infant is unable to absorb fat and also has trouble digesting starch and sugars.

Babies with this disease usually must be given lots of protein in their diet and the bananas help because they furnish carbohydrate in a form (monosaccharide) the babies can digest. The new amino acid-milk preparation would help build up the protein in the diet, since amino acids are chemical building-blocks of protein. Dried banana powder might be used where fresh bananas are not obtainable.

Bananas have become a staple article of the modern infant's diet in health as well as sickness. Mothers of healthy babies need not be alarmed over the banana shortage. The baby's doctor can tell them how to revise the diet so as to eliminate bananas if that is necessary without any impairment of baby's health or nutritional state.

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Three million new *agricultural workers* will be needed in 1942, according to the War Man Power Commission.

● RADIO

Saturday, August 15, 1:30 p.m., EWT

"Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. H. S. Bernton, of Washington, D. C., will discuss hayfever.

Tuesday, August 11, 7:30 p.m., EWT

Science Clubs of America programs over WRUL, Boston, on 6.04, 9.70 and 11.73 megacycles.

One in a series of regular periods over this short wave station to serve science clubs, particularly in the high schools, throughout the Americas. Have your science group listen in at this time.

AERONAUTICS

Fighter Command Models Made by Volunteers

See Front Cover

MODEL planes made by volunteers will be used for instruction in 9,000 Observation Posts along the Atlantic seaboard.

The illustration on the front cover of this week's SCIENCE NEWS LETTER, is an official U. S. Army Air Corps photograph showing Captain Ralph T. Millet and Captain A. K. Mills (seated), of the First Fighter Command, U. S. Army Air Force, examining the models at Science Clubs of America Headquarters.

The models were constructed in response to an appeal by Brigadier General A. K. Cannon.

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ANTHROPOLOGY

Uzbeks, Kazaks, Mordvians All Friends of Ours Now

UZBEKS, Kazaks, Mordvians, Chuvash, Tajiks: ever hear of them? No? Well, you should. They're all friends of ours now, allies in this war we're in. Only they've been in it longer than we have; many of them have been shooting at Nazis for more than a year now. And the Udmurts, Maritsi, Osetians, Karakalpaks, Komi, Khakasi, Oirots, Bolgars and Ingush are mad at Hitler, too.

You've probably guessed it by now. They're all minor but definitely distinguishable peoples living in the huge section of the map under the blanket label of USSR. Some of them, like the Uzbeks and Kazaks, number several millions; other groups are counted in a few tens of thousands.

The many peoples who make up what we lump as Russia are described, and their family histories outlined, in a new Smithsonian Institution study written by the veteran anthropologist, Dr. Ales Hrdlicka, who has travelled extensively in both European and Asiatic Russia and is in constant correspondence with fellow-scientists throughout the vast area. (*Smithsonian Institution War Background Study No. 3.*)

Many of the minor peoples in Asiatic Russia Dr. Hrdlicka classifies as "yellow-browns," related to our own American Indians. Altogether they comprise about a tenth of the 197 million people in the Soviet lands. Eight-tenths are white, the remaining tenth mixtures. Fair-skinned Russians intermarry freely with their darker neighbors, so that the eventual absorption of the minor groups into the great mass of the Russian people can be expected.

The three great stocks of European Russia, the Great Russians, Little Russians and White Russians, together number over 132 million, thus constituting a heavy majority of the total population of the USSR. In general, they are fairer of skin, hair and eyes than the mixed-race "Herrenvolk" who despise (and fear) them; though they are less blond and rounder-headed than the real Nordics of the Scandinavian lands.

Russian population increases at 15 per thousand per year, is nearly twice as rapid as that of Germany or the United States, both standing at eight per thousand per year. Dr. Hrdlicka terms the Russian stock "a great human reserve of the European population."

Science News Letter, August 8, 1942

BOTANY

Fungus-Killing Chemical Causes Faster Growth

A RECENTLY developed chemical treatment of pea seed, to combat a disease-causing fungus that caused serious losses in fresh-sown pea fields, proves to be a good growth-and-yield stimulant as well, reports Dr. George L. McNew of the New York State Agricultural Experiment Station (*Science,* July 31).

The chemical is a synthetic product, bearing the formidable-looking but accurately descriptive name of tetrachloro-para-benzoquinone. It is, Dr. McNew states, "the first strictly organic, non-metallic compound to show much promise as a plant protectant against fungous diseases."

Better growth and increased yields of peas treated with this compound were at first attributed to the better start their seedlings got, unhampered by attacks of vicious fungi. But when treated seed were planted in steam-sterilized, fungus-free soil, and untreated seed planted alongside them in similar soil, the treated lot outgrew and outyielded the untreated plants just the same.

Dr. McNew therefore suggests, "As a growth stimulant, the material should pay dividends in practically every field, irrespective of disease conditions."

Investigation of the effects of the compounds on other plants is now planned, as well as studies on growth-promoting value of related chemicals.

Science News Letter, August 8, 1942

IN SCIENCE

AERONAUTICS

Jap Zero Planes Fear To Attack Flying Fortresses

JAP Zero planes hesitate to attack Yank Flying Fortresses nowadays, because the fire from the .50-caliber tail guns is too hot for them. So they have developed a new trick, state Col. A. S. Newman and Capt. R. H. Lawson. (*Infantry Journal,* August.)

They fly along, about half a mile from the big planes, at the same altitude and speed, and radio these data to the anti-aircraft guns on the ground, which are thus able to fire with considerably greater accuracy.

Sort of an "I'll sic my big brother on you!" tactic.

Science News Letter, August 8, 1942

ICHTHYOLOGY

Difference in Fin Growth Marks Wild-Grown Trout

HATCHERY-RAISED trout can be distinguished from those that were hatched and grown entirely in the wild by examining their back fins, C. N. Feast, director of the Colorado Game and Fish Commission, has discovered.

Trout grown to legal size in a hatchery, he says, have dorsal fins somewhat degenerated through crowding. When they are released into the roomier waters of streams, the fins develop to full size, but are always malformed, and their cartilage structures are always cracked. This does not detract from the fish's health, gameness or flavor, but does form an identifying mark.

Using this means of detecting hatchery-raised fish, Mr. Feast cruised the Gunnison, one of Colorado's best known streams, and found that 80% of the trout in it are hatchery-raised, a result of the Commission's policy of raising its fish to full legal size instead of releasing them as fingerlings.

Despite the war, Mr. Feast adds, there has been only a slight decline in number of fishing licenses. The decrease has probably been mainly among out-of-state fishermen, who find it more difficult to get to their favorite angling streams.

Science News Letter, August 8, 1942

NCE FIELDS

PLANT PATHOLOGY

Japanese Fungi Attacking Wheat in New York

JAPANESE fungi are attacking American wheat, though as yet not causing really serious damage. Presence of the alien marauders, which cause diseased spots on the grain leaves, is reported from Western New York by Dr. M. F. Barrus of the New York State College of Agriculture, and from the experimental plantings of the U. S. Department of Agriculture's great experiment station at Beltsville, Md., by Dr. A. G. Johnson.

The disease was first detected in June, 1941, and the extent of its distribution suggests that it has been in this country for several years. The Plant Disease Survey is anxious to obtain further information about its occurrence, and collaborators and cooperators are now on the lookout for it in other localities.

Science News Letter, August 8, 1942

PHYSICS

Neutron Pictures for X-Rays Proposed in German Patent

NEUTRON pictures in place of or to supplement X-ray pictures, taking advantage of the far higher penetrating power of neutrons—higher than 1,000,000-volt X-rays or even than the gamma rays of radium—are proposed in U. S. patent 2,287,619, recently issued to Hartmut Israel Kallmann and Ernst Kuhn of Berlin, Germany.

The proposal is not new, and the invention is specifically confined to a compact self-contained device for producing the neutrons, slowing them down, that is, regulating their penetrating power, and protecting the operator and the objects, especially when the latter is a living thing.

The preferred source of neutrons is a beryllium target bombarded by positive ions of heavy hydrogen, accelerated by application of 1,000,000 volts. This gives a volume of neutrons, the inventors say, equal to that obtained from 7 grams of radium intimately mixed with beryllium —more perhaps than has ever been gathered in one place.

This source gives fast neutrons which are then slowed down to the desired penetration by varying thicknesses of a hydrogen containing compound, such as paraffin or paraffin oil. This compound serves also to insulate operator and specimen from the high voltage. For further protection, the whole apparatus is surrounded by insulating material and this again by a conducting shell which is grounded.

While the inventors stress medical applications, it is obvious that the apparatus is also suitable for other applications, and we may be reminded that slow neutrons are the ones that have figured in the search for atomic power. Are the Nazis up to something?

Science News Letter, August 8, 1942

MEDICINE

Vitamin B Relieves Pain After Tooth Extraction

THE SEVERE pain of a "dry socket" after tooth extraction can be relieved by injections of vitamin B_1 (thiamine hydrochloride), Dr. Joseph P. Osterloh, of San Francisco, reports (*Journal, American Dental Association, Aug. 1*).

Pain ceases permanently in 69% of the cases within 20 to 30 minutes after injection of the drug, he finds. For best results, he advises injection into the buttocks, although injections in the biceps of the arm may also be given.

"Evidently a very small increase in the actual concentration of the vitamin substance is needed in the tissues to overcome the severe pain often associated with dry socket," Dr. Osterloh declares.

Experience with 130 cases of dry socket has led him to give the vitamin by mouth for from three to five days before teeth are to be pulled in "patients with visibly lowered resistance or with devitalized teeth." This is followed by hypodermic injection of the vitamin an hour or more before the dental operation. With this method, he reports, not one case of dry socket developed in 38 cases of broken-down and devitalized teeth.

Dr. Osterloh considers this method far superior to sedative packings in the wound which, he points out, give only temporary, partial relief that lasts only as long as the medicine in the packing remains active.

Science News Letter, August 8, 1942

FORESTRY

Keep Down Forest Fires As Aid in Winning War

"EVERY forest fire is an enemy fire," Secretary of Agriculture Claude R. Wickard declared, in launching a nationwide Wartime Forest Fire Prevention campaign. It makes no difference whether the blaze was started by saboteurs landed from submarines, crackpot fifth columnists from our own population, or loyal Americans forgetting to be careful with matches, cigarette butts and campfires, the result is the same: destruction of lumber that might be ships or troop cantonments, of cellulose that might become smokeless powder or rayon khaki shirts, of paper and cardboard that might find use as packages for cartridges or rations.

"Protecting our forests is a never-ending fight, waged by the Forest Service of the Department of Agriculture, and by State and local foresters," Secretary Wickard pointed out. "Even in normal times fires sweep over more than 30 million acres of woodland each year, destroying timber and property worth over $35,000,000. That is just the commercial damage. It doesn't include things like destruction of young growth and losses of woodland birds and animals. It doesn't include loss of equipment, stoppage of industry, and damage to watersheds."

Science News Letter, August 8, 1942

RESOURCES

Essential Chemicals Can Be Saved From Spray Paints

MANUFACTURERS of war equipmen have been asked by the War Production Board to start immediate programs for salvage of the "over-spray" of the paint spraying process, from which 100,000,000 pounds of essential chemicals can be recovered, according to estimates of the Chemical and Textile Units of the WPB Conservation Division.

Army tanks, trucks, jeeps, and other military machines must be mass spray-painted with the familiar olive drab. Millions of shells must have a protective coat of nitrocellulose lacquer enamel. It is estimated that about 30% of the materials used can be recovered from the sludge of the over-spray.

Pigments, glycerine, oils, resins, gums, chlorinated rubber, cellulose and plasticizers, are some of the materials that can be recovered by tried and tested methods, and the painting cost also reduced.

Science News Letter, August 8, 1942

RESOURCES

Cotton Socks and Rayons Predicted for Hosiery

"Bottled Stockings" and Slacks May Be Necessary; Drawstrings and Ribbing Replace Milady's Garters

By MARJORIE ESTABROOK

NEXT WINTER, according to expert opinion, the average woman's stockings will be mostly cotton socks (ankle, calf and knee-length), relieved by service-weight rayons. If she has anything sheer to dress up in, it will be what she has saved out of present supplies. She won't be too particular whether it is silk, nylon, rayon or cotton mesh.

Last year's silk shortage was solved by revolutionary improvements resulting in high-grade sheer rayon hosiery and lace and net designs in full-fashioned cotton. But this year's problem is not only the disappearance of silk and nylon, but of any yarn with sufficient strength and elasticity to produce sheer hose.

High-tenacity rayon is needed for supply-parachutes and tires; summer uniforms, underwear, and fine broadcloth service shirts absorb the long-staple cottons that were used for full-fashioned hose. And what Uncle Sam doesn't need, our allies do.

In view of these unprecedented government needs, it is startling to learn that silk and nylon stockings are still available. But apparently production has all but stopped on these, and they are trickling through because retail stocks have been held back by wholesalers and jobbers. Small manufacturers of sheer, fine-gauge hose are out of luck now that sheer yarns are not available. While the large mills can close down part of their plants and convert the rest, no way has been found to convert those luxury machines which knit fine-gauge, full-fashioned hose.

Only 10% Cotton

John Shireman, chief of the War Production Board knit-goods section, predicts that by August 1 90% of the women's hosiery produced will be rayon, the other 10% cotton.

"Business Week" in a review of the situation predicts that the squeeze on long-staple cotton will soon force that 10% out of existence. Discounting small companies altogether, they estimate that the big full-fashioned manufacturers will be lucky if they can keep going at 55% to 65% capacity.

That leaves us with service-weight rayon for the duration, and a dubious quantity of that. But even if no manufacturing miracles reverse this situation, "bottled stockings" provide a summer solution, and slacks a winter one. Cosmetic hosiery, in tubes, bottles and leg sticks, are already being displayed on stocking counters in forward-looking stores, rather than in the cosmetic department. However, the new WPB order limiting production to last year's level may not supply next summer's demand for leg paint.

Slacks and overalls will cover a multitude of socks, runs and snags next winter, and for glamor there are seductive evening and dinner slacks to be worn either with a snagged pair of silk stockings or sheer cotton-mesh socks now being sold in exotic bright colors. Under WAAC uniforms, regulation rayon or mercerized lisle will appear in a modest sunburnt tone, "appropriately called 'Victorious.'"

Drawstring in Socks

If you've been wondering how those new slack-length socks would stay up without rubber, the July "Underwear and Hosiery Review" explains that they will either have tightly knit ribbing at the top, or you will use a drawstring, setting a new style in sportswear.

The post-war hosiery picture looks very bright. Presumably women will not forget all about sheer glamor, but many experts think they will forget about silk. The wearing qualities of nylon will have spoiled them. But high-tenacity rayons, according to E. Max Schenke, Director of Research for the National Association of Hosiery Manufacturers at the Bureau of Standards, will replace silk in the lower-price lines not reached by nylon. Other favored successors to the silkworm are such synthetic fibers as Vinyon. "Bare-leg," seamless stockings will be the particular favorite, judging by the way they sold before nylon was snatched away.

Seamless rayons are also a possibility, particularly since the recent development of acetate rayon hose. Because of its plasticity, acetate can be "preboarded" (molded to a desired shape) like nylon. It is less weak than other rayons when it is wet, dries faster and is said to have a greater snag resistance. Already being offered in small quantities, the acetate stocking is a child of necessity, developed in a hurry when the government began making unprecedented demands for viscose and cuprammonium rayon yarn, the only two kinds hitherto used by the hosiery industry. But there is no guarantee that acetate, too, will not be snatched away from them for the duration.

Process Not New

While acetate stockings are providing the biggest news in the hosiery world, the process itself is not new. According to the trade journals, it has accounted for 20% of all rayon production. It has often been combined with other yarns for stripe effects. Because of its different affinity to the dye, it will produce harmonizing or contrasting color designs from a single dye-bath.

The name "acetate" comes from the use of acetic acid to steep the liquid cellulose. As in the other rayon methods, this cellulose, derived from wood pulp or cotton linters, is chemically converted into a liquid and forced through the tiny holes of a sieve-like "spinneret". The liquid filaments which result are hardened into yarn when they meet an acid-coagulating bath. The finer yarns result from going through a finer sieve, so to speak.

For the present, the most useful contribution which science can make to the ladies is to teach them how to wash rayon hose. It's not hard if you remember that rayon is allergic to heat of any kind and to stretching while wet—so much so that the rooms where rayon hose are knit have to be kept at a constant humidity.

The higher-priced rayons (meaning fine-gauge, high twist, and expensive "finish") pay dividends in longer wear, but one pair cannot be worn every day. They should be washed every night, and must be thoroughly dry before they can be worn again. The Bureau of Home Economics, who advise laying them on

Dust takes a holiday

A TINY SPECK OF DUST . . . no bigger than a gnat's whisker . . . may loom as large as a battleship, if trapped in the lens system of a bomb sight during assembly

Abrasive grit plays havoc in the mass production of precision-built aircraft motors.

Industrial fog . . . from vaporized coolants for cutting tools . . . reduces lighting levels and may injure the health of workers in blackout plants.

Dust and dirt are the invisible saboteurs that constantly threaten the life of machinery . . . cut down wartime production . . . impair the quality of precision parts when quality counts as never before.

Many filtering mediums have been used to remove air-borne dust and dirt from ventilating systems. None has proved as efficient or as economical as the *Westinghouse Precipitron.*

There's good reason for this. The Precipitron removes dust *electrostatically* by attracting highly ionized dust particles . . . as small as 1/250,000 of an inch . . . to electrically charged plates. Here they adhere, allowing 90% dust-free air to flow to the ventilating fans.

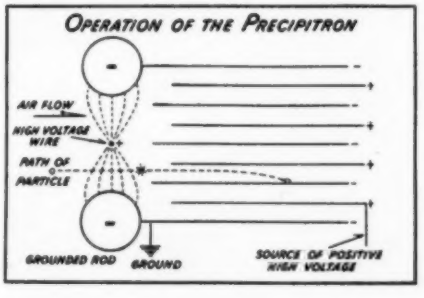
The Precipitron first saw the light of day in the Westinghouse Research Laboratories when G. W. Penney, electrophysicist, studied the possibility of adapting the electrostatic precipitation principle to ventilating systems.

Westinghouse engineers lowered the applied voltage of the older system, from as high as 100,000 down to 13,000 volts. They cut dangerous ozone concentration to less than 1 part in 100,000,000. By separating the ionizing and collecting elements, they increased efficiency . . . and reduced installation, operating, and maintenance costs.

Thousands of Precipitron cells are now supplying dust-free air at Naval air stations where bomb sights are overhauled . . . and in war production plants making binoculars, range finders, and submarine periscopes.

A combined Precipitron capacity of 15,000,000 cubic feet per minute has been installed in stores, hospitals, textile mills, steel-mill motor rooms, laboratories, hotels, homes . . . wherever dust-free, pollen-free air is essential.

The Precipitron is but one of many examples where Westinghouse "know how" has been applied to speed war production . . . to forge better weapons for victory.



Westinghouse

WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, PITTSBURGH, PENNSYLVANIA • PLANTS IN 25 CITIES — OFFICES EVERYWHERE

a towel to dry, estimate 18 to 24 hours for drying, but the Bureau of Standards says the welts and soles must have 24 to 36 hours for safety.

Directions given by one manufacturer, the American Viscose Corporation, tell you to put them on carefully, wash them after wear in mild suds with tepid (and they mean tepid!) water, squeeze gently, don't rub, twist or wring; hang on smooth rod away from heat and sunlight; never use clothespins; and let them dry for two days.

This may sound tedious, but in these days the most important fashion advice is how *not* to buy clothes, but to conserve the ones we have. And that's one patriotic duty which has definite advantages to the pocketbook.

Science News Letter, August 8, 1942

MILITARY SCIENCE

Natural Vegetation Used in Highly Successful Camouflage

Camp in Everglades Is Scattered Over Nine-Mile Site With No Streets and Buildings Hidden Under Trees

SOMETHING revolutionary and logical in the art of camouflaging an army camp has been developed in the jungle back of Hobe Sound, Florida. Instead of imitating nature with artificial disguises, easily discovered by the camera, nature has been drafted to provide the black whiskers.

Camp Murphy, the latest training center for Signal Corps radiomen, has been so ingeniously planned that it is almost as invisible from the air as from the ground. The 5,000 men it will accommodate will be as well hidden as though they were the native rattlesnakes, lizards and chameleons working in underground bomb shelters.

The site of the camp is a wild spot on the fringe of the Everglades. It is covered with dense tropical growth. Shrub and cabbage palmetto, swamp maple, Australian pine, palm, live oak, cactus and impenetrable mangrove in the wet places, flourish on the reservation.

Instead of making a big clearing and massing the barracks, bakery, meat storage plant and the rest of it into a crowded town—an inviting target for enemy planes—the camp is scattered over the nine-mile-long reservation. There are no streets. The buildings face every point of the compass. It is a town planner's nightmare.

The contractors were ordered not to remove one tree or shrub unnecessarily. Workmen disobeying were fined. The buildings are painted a dull green to blend with the subtropical flora that often brush their walls, or, if bending palms, shade their roofs.

You can walk through the camp and not know you are near a building until you bump into it. Radiomen don't need a big open space for maneuvers, so there is no tell-tale white sand drill ground to give the camp's location away to enemy planes. It would be waste of bombs, anyway, to drop any on such a sparsely populated area. Not so far away there are as many alligators per square mile as there are building at Camp Murphy.

Florida trees being evergreens, Camp Murphy's protective covering will be as effective in the winter as in the summer.

Science News Letter, August 8, 1942

LARGEST LATIN AMERICAN BRIDGE

New step in completion of the road which will run from Alaska to Argentina.

ENTOMOLOGY

American Cockroaches Produce Large Families

WHY so many cockroaches manage to appear just where they are least wanted is revealed by studies of their family life at Iowa State College.

Experiments showed that prolific American lady roaches raise a family of 163 offspring, on the average, during an adult lifetime of less than one year. In some cases reproduction was found to occur even in unmated females. Others continued to produce offspring from several months up to a year after a single mating.

Science News Letter, August 8, 1942

ENGINEERING

El Salvador Opens Big Suspension Bridge

THE Republic of El Salvador has just completed the largest suspension bridge in Latin America, thus tying the two American continents by the 14,000 mile ribbon of Pan American highway.

The new bridge is another step in the completion of the road which will eventually carry military or civilian traffic from Alaska to Argentina. Spanning the Lampa River, the 1,350-foot bridge replaces ferry service by a scow propelled only by the river's current, according to Lieut. Col. Evelyn E. Valentini, technical adviser of the Pan American Highway Confederation.

Science News Letter, August 8, 1942

NUTRITION

Beefsteak Shortage Foretaste Of Post-War Meat Hunger

Our Shortage Due to Price and Shipping Problems But It's Really Scarce in Europe; They'll Want Ours

THE present beefsteak shortage and the change in Fido's prepared food is giving Americans a foretaste of a world-wide meat hunger that will become acute when war is over.

Fido and other less aristocratic pooches are already turning up their noses at the new dog foods which, though nourishing, are low in appetite appeal even to a hungry dog. Fido's master and mistress, now worried over a beefsteak and pork chop shortage, may when the war is over, be glad for the horsemeat which used to go into Fido's food.

The present meat shortage in the United States, especially in eastern states, is a matter of price adjustment and only temporary. No one needs to suffer from it, because fish and chicken or other poultry can be substituted for meat without any sacrifice of diet essentials. But in most of Europe poultry and probably fish are more scarce than beef, pork and veal are here today. In fact they are almost non-existent.

Our present meat shortage is due to price and shipping problems. In European countries the cattle have long since been slaughtered, the precious grain has gone to feed humans rather than chickens and geese, and when the war is over there will be a world raid on the American meat market that may put us all on very short rations.

Meat means steaks, chops and roasts to most people. To the nutritionist, meat means protein, and he knows that protein is a "must" ingredient of human diets. Proteins are found not only in meat, fish and poultry, but also in cheese, milk, eggs, grains, nuts and some vegetables, especially beans and peas. Not all of these protein foods, however, are equally nourishing for humans.

Proteins in foods and man's body tissues are built up from chemicals called amino acids. Certain of these acids are "essential" and must be supplied preformed in the diet, whereas others can be manufactured by the body from simpler substances. The proteins from meat, cheese, eggs and other animal sources are called "first class" proteins because they supply all the essential amino acids. Vegetable, grain and nut proteins are not considered "first class" proteins because they lack one or more of the essential amino acids.

In Germany during the last war a dropsical condition known as war edema or famine swelling occurred because, it is believed, the sufferers did not get enough first class protein food. Victims of the famine in Russia in 1923 were found to have striking wasting of the sex glands, a condition which recent experiments suggest was probably also due to lack of first class protein. This same lack may be the reason for the low fertility among famine or near-famine victims.

The recent experiments showing a relation between protein lack and human reproductive ability are part of a big study which it is hoped will aid in solving the post-war feeding problem. The scientists, working at the Johns Hopkins Hospital and Medical School, are investigating, one by one, each of the ten essential amino acids to find just what happens when one of them is missing from man's diet. The one called arginine is suspected of being a paternity chemical, required for production of the male reproductive cells, the spermatozoa.

Hitherto human need for arginine and the other essential amino acids has been assumed from the fact that young laboratory rats require them. Knowledge of the growing rat's need for amino acids came from research initiated by the late Professors Thomas B. Osborne and Lafayette B. Mendel and recently completed by Prof. W. C. Rose of the University of Illinois.

Now the job is to find how many and which of these amino acids are really essential in the diet of man and of his domestic animals such as cattle and chickens, and what happens to the man or cow or chicken that does not get a particular amino acid. With this knowledge, scientists hope they can put together, for a meat-hungry world after the war, a combination of vegetables and grains which, even if not as tasty as beefsteak, will supply the nourishment of the beefsteak or other animal protein.

Science News Letter, August 8, 1942

Rust-proofing oils must be used on countless metal items, from tank engines to the tiniest bearings in radio transmitters.

Petroleum alcohol was discovered during World War I.

BOOKS

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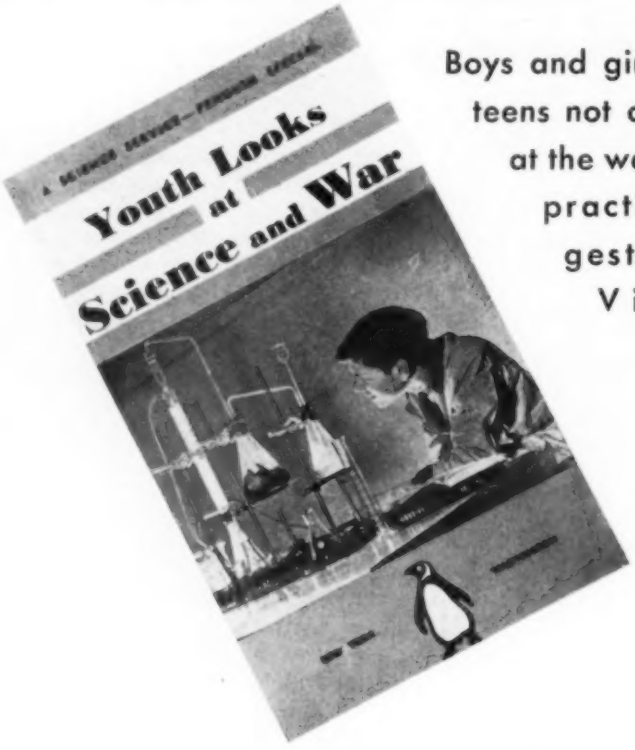

Boys and girls in their teens not only LOOK at the war but give practical suggestions for Victory.

During the First Annual Science Talent Search forty of the most brilliant boys and girls were selected to come to Washington to compete for Westinghouse scholarships. Each of these finalists wrote an essay so stimulating, so thought-provoking that Science Service compiled the forty articles in book form. The subject of each is "How Science Can Help Win the War."

YOUTH LOOKS AT SCIENCE AND WAR contains 140 pages of well-printed text and includes, besides the essays, the science aptitude test that was requested by over 10,000 high school seniors. The answers to the questions are given, also. Grown-ups need not worry if they cannot answer each question correctly for not one of the seniors made a score of 100.

So that many readers may enjoy the book, Science Service has reduced the cost to the minimum—25 cents. Please clip the attached coupon and send to our Washington office.

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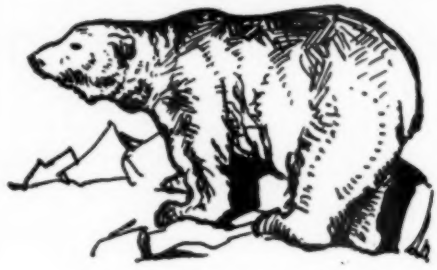
ZOOLOGY

NATURE RAMBLINGS
by Frank Thone



From a Warm Climate

DON'T pity the poor polar bears in your city zoo, when the mercury is bubbling in its tube and threatening to put on a creditable imitation of Old Faithful geyser. Polar bears don't mind the heat as much as you think they do. They aren't altogether unused to it, for the Arctic gets hot days in midsummer, even though they may not be quite such sizzlers as the Old Home Town can boast of.

U. S. Weather Bureau records show real summer temperatures for three seacoast towns near or above the Arctic circle in Alaska. Highest on record at Nome, facing Bering Strait just below the circle, is 84 degrees Fahrenheit, in a period of 32 years. A little to the north, and just above the circle, is Kotzebue, where a 14-year maximum is given as 81 degrees. At Point Barrow, northernmost spot on the North American mainland, a 25-year record shows 78 degrees as the highest.

Admittedly, this is nothing for the Chambers of Commerce of those places to get "all het up" about; nevertheless they are real summer temperatures. They'd be considered pretty high, for instance, in London. Reason for such high temperatures at such high latitudes of course is the continuous sunshine. When the sun doesn't set at all for several weeks, it can get pretty warm, even 'way up north.

Inland, it does even better than that. Temperatures of 100 degrees have been reported from interior valleys in Alaska; but they don't count here, for polar bears never go inland. They stick around the beaches, where they can get seals and fish, and an occasional feast of stranded whale.

Of course, if the polar bear doesn't like his 80-degree day at the seashore, he can always jump right in where it's cool, just as he jumps into his cool pool in the zoo's bear pit. All bears can swim, but the polar bear is the "swimmin'est" of them all. Despite his great size, he can chase and catch a salmon under water, as easily as an otter.

Like all bears, the polar bear eats anything. Force of circumstances, however, compel a diet more predominantly of meat and fish than other bears ordinarily choose. The berries, fleshy roots and succulent grubs in which other bears delight are available to him only during the brief Arctic summer. And the greatest bear treat of all, the finding of a honey tree, is entirely out of his ken. There can't be any bee trees in his habitat, because there aren't any trees at all.

Science News Letter, August 8, 1942

New Machines And Gadgets

Novel Things for Wartime Living

The fine gossamer wires for the delicate electrical instruments which make it possible for our giant bombers to fly accurately on their missions and our big guns to hit their marks, are made by drawing the metal through a tiny hole in a small Brazilian diamond. The smallest of these dies is a diamond weighing only 1/800 of an ounce with a hole only four-thousandths of an inch in diameter, producing a wire far finer than a human hair. Two years ago nearly all of the smaller sized dies were imported from Europe. Now they are made in this country.

The miles per gallon you are getting can be instantly read on a meter newly patented. The fuel pump contains a vibrating diaphragm. The frequency of vibration depends on the speed of the car. The amplitude depends on the rate of fuel flow. Divide one by the other, which the instrument does for you, and you have miles per gallon.

An electromagnet carried by a truck picks up small bits of metal scattered about the yard of an automotive plant, thereby preventing tire punctures to other vehicles. Thirty punctures a month in the tires of combat vehicles manufactured by this company was the average before the magnetic "scavenger" was introduced. The number of punctures has since been much reduced.

This blackout microphone covered with phosphorescent paint gives enough light to enable the announcer to go

right on reading his script. In this case the script is also printed in fluorescent ink which glows when flooded with ultraviolet light.

Spilled coffee drains off into a deep recess in the saucer, according to a recently patented invention. Little inwardly jutting pieces spaced around the edge of the depression hold the cup clear of the spilled liquid. It should be a boon to those who saucer and blow their coffee, because the saucer holds more than the ordinary kind.

Old stiff paint brushes can be softened in the vapor of a new paint solvent. This is a radical departure from the old method of soaking, and saves solvent. The brushes are suspended above the solvent in a closed can. Good bristles are scarce, so save your old brushes.

If you want more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, *1719 N St., N. W., Washington, D. C., and ask for Gadget Bulletin 116.*

Science News Letter, August 8, 1942

FORESTRY

Fast-Growing Chinese Elm Shows Up Well in Tests

WOOD of the fast-growing, drought-resistant Chinese elm, favored for planting as an ornamental and shelter-belt tree in the prairie regions, shows up well in comparison with the wood of native elm species, Prof. A. J. Panshin of Michigan State College states (*Journal of Forestry,* July).

It is not as stiff as native elm woods, Prof. Panshin discovered, but it is harder than either white or slippery elm, and compares well with white elm in ability to bear a slowly applied load and in resistance to compression.

Science News Letter, August 8, 1942

Strategic minerals

BAUXITE and manganese have been important to American industry for years, but never more so than now.

Manganese, indispensable to the making of steel is known as the "starch of steel." Bauxite, the ore of aluminum, is also a source for many other useful items, such as artificial abrasives, alum, aluminous cements. insulating materials, and preeminately, aluminum. Airplanes are constructed about 90% of aluminum.

Where do these minerals come from? What do they look like? This unit of "THINGS of science" will give you the answer, as well as specimens of bauxite, manganese ore in the raw state, and manganese ore after concentration. Also enclosed with this unit, is an illustrated booklet on aluminum.

Strategic minerals such as bauxite and manganese are tools of war. Wouldn't you like to know more about them?

As in all units of THINGS of science, this unit contains specimens of scientific material to be examined, studied, and enjoyed. Museum-style legend cards are supplied for each science object; a brief, clear explanation of the entire contents is included with suggested experiments. This service is under the sponsorship of Science Service, the non-profit institution for the distribution of scientific information.

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•First Glances at New Books

NUTRITION

MODERN BREAD FROM THE VIEWPOINT OF NUTRITION—Henry C. Sherman and Constance S. Pearson—*Macmillan,* 118 p., $1.75. The advent of enriched bread to American tables and the renewed emphasis on whole wheat bread and all the consequent discussion about bread of all kinds has doubtless created some confusion in the minds of many responsible for planning diets and feeding people, from the housewife to the professional dietitian. This book will help to dispel the confusion for those with enough knowledge of science to read material more advanced than the ABC style of science books for the layman.

Science News Letter, August 8, 1942

AERONAUTICS

THE LINK TRAINER—E. Molloy and E. W. Knott, eds.—*Chem Pub. Co.,* 132 p. illus., $2.50. This is the instrument like a dummy closed cockpit which is used to train flying cadets in instrument flying and to give them the "feel" of an airplane in flight. Many have been trained in the Link, but comparatively few have learned how to operate it. This book tells how to run it and also how to set one up, service it and make adjustments.

Science News Letter, August 8, 1942

PHOTOGRAPHY

THE NEW PROJECTION CONTROL—William Mortensen—*Camera Craft,* 123 p., illus., $2.75. If you are an enthusiastic photographer and do your own printing, the gasoline-rubber shortage may seem to you to provide a welcome opportunity to spend long hours in the darkroom. This book by an authority on the making of salon prints will inspire you with a thousand ideas for creating new artistic effects with your enlarger.

Science News Letter, August 8, 1942

PSYCHOLOGY

THE VARIETIES OF TEMPERAMENT, A Psychology of Constitutional Differences—W. H. Sheldon and S. S. Stevens—*Harper,* 520 p., $4.50. The authors believe that they have found a deep-seated constitutional pattern underlying individual personality which has its parallel in physical make-up and liability to particular diseases. This thesis is likely to meet with considerable skepticism and controversy among scientists who have tried unsuccessfully in the past to find conclusive evidence for such a scheme for pigeon-holing humans.

Science News Letter, August 8, 1942

CHEMISTRY

THE STONE THAT BURNS, The Story of the American Sulphur Industry—Williams Haynes—*Van Nostrand,* 345 p., illus., $3.75. This book tells the story of the great sulphur industry of Louisiana and Texas, and the Frash process by which sulphur 1,000 feet below ground is melted and pumped to the surface, which emancipated this country from its complete dependence on Europe for sulphur before 1900, and enabled it eventually to supply not only all of its own needs but some of those of the rest of the world besides.

Science News Letter, August 8, 1942

• Just Off the Press •

ACTIVITIES OF THE NATIONAL ASSOCIATION OF WOOL MANUFACTURERS FOR 1941; STATISTICS OF THE INDUSTRY—*Natl. Assn. of Wool Manufacturers,* 628 p., $2.

ALGEBRA—Paul L. Evans—*Ginn,* 134 p., $1.25.

THE BIOLOGICAL ACTION OF THE VITAMINS, A SYMPOSIUM—E. A. Evans, Jr., ed. —*Univ. of Chicago,* 227 p., $3.

CALCULUS—Paul L. Evans—*Ginn,* 133 p., $1.25.

DIFFERENTIAL EQUATIONS (Rev. ed.) — Max Morris and Orley E. Brown—*Prentice-Hall,* 355 p., $3.

EXERCISES IN ECONOMIC GEOGRAPHY—W. O. Blanchard—*McGraw-Hill,* 64 p., $1.

FLOWERING PLANTS AND FERNS OF ARIZONA —Thomas H. Kearney, Robert H. Peebles and collaborators—*Govt. Print. Off.,* 1069 p., illus., $2.

GLOBAL WAR, An Atlas of World Strategy—Edgar Ansel Mowrer and Marthe Rajchman —*William Morrow,* 128 p., maps, $1.

HANTKENINA IN THE EOCENE OF EAST BORNEO—Hans E. Thalmann—*Stanford Univ.,* 24 p., maps, 50c.

HOW TO LIVE IN THE TROPICS — Virginia Lloyd Hunt—*Harcourt, Brace,* 178 p., $2.

PARACHUTES — Herbert S. Zim — *Harcourt, Brace,* 252 p., illus., $2.50.

PLANE TRIGONOMETRY WITH TABLES — Paul L. Evans—*Ginn,* 200 p., $1.25.

PRACTICE FOR THE ARMY TESTS—*Arco Publishing Co.,* 116 leaves, $1.50.

SIGNIFICANCE OF LEPIDOCYCLINA (LEPIDOCYCLINA) CALIFORNICA, NEW SPECIES, IN THE VAQUEROS FORMATION (TERTIARY), CALIFORNIA — Hubert G. Schenck and T. S. Childs, Jr.—*Stanford Univ.,* 59 p., 4 pl., $1.25.

SPHERICAL TRIGONOMETRY, and Tables—William Anthony Granville, Rev. by Percey F. Smith and James S. Mikesh—*Ginn,* 122 p., $1.25.

THE STONE THAT BURNS, The Story of the American Sulphur Industry—*Williams Haynes —Van Nostrand,* 345 p., illus., $3.75.

STRATEGIC MATERIALS AND NATIONAL STRENGTH—Harry N. Holmes—*Macmillan,* 106 p., $1.75.

SUBMARINES — Herbert S. Zim — *Harcourt, Brace,* 306 p., illus., $3.

TEXTBOOK OF ANATOMY AND PHYSIOLOGY (11th ed.)—Diana Clifford Kimber, Carolyn E. Gray and Caroline E. Stackpole—*Macmillan,* 769 p., illus., $3.

MEDICINE

AMBASSADORS IN WHITE, The Story of American Tropical Medicine—Charles Morrow Wilson—*Holt,* 372 p., illus., $3.50. The book combines social philosophy with a popular account of the work of Reed, Finlay, Gorgas and the many scientists who have made great contributions to knowledge of tropical medicine.

Science News Letter, August 8, 1942

BOTANY—BIOGRAPHY

JOHN TORREY, A Story of North American Botany—Andrew Denny Rodgers III—*Princeton Univ.,* 352 p., $3.75. A carefully written, well documented biography of one of the leaders of American botany during the first three quarters of the nineteenth century. Botanists everywhere will welcome this book.

Science News Letter, August 8, 1942

SOCIOLOGY

AN INTRODUCTION TO SOCIOLOGY—John Lewis Gillin and John Philip Gillin — *Macmillan,* 806 p., illus., $2.75. It is interesting that a textbook on sociology published at this time should have a total of not much more than 6 of its 806 pages devoted to the subjects of war and Nazism with the word democracy not even appearing in the index. The authors are a sociologist from the University of Wisconsin and an anthropologist from Duke University.

Science News Letter, August 8, 1942

MEDICINE

MEMORANDA ON MEDICAL DISEASES IN TROPICAL AND SUB-TROPICAL AREAS—Great Britain. The War Office—*Chemical Pub. Co.,* 282 p., $4.75. This first American edition of a standard English military manual for use of medical officers in the field will doubtless be of interest to American medical officers many of whom in the present war may find themselves confronted with problems of tropical medicine new to their experience. The book of course is too technical for the lay reader.

Science News Letter, August 8, 1942

MATHEMATICS

THE GIST OF MATHEMATICS—Justin H. Moore and Julio A. Mira—*Prentice-Hall,* 726 p., Trade ed., $5.35; School, $4. For those who have forgotten what they learned in their student days about mathematics, or didn't learn enough, this book offers a means of self-help. Starting with arithmetic, it continues to a little beyond the threshold of calculus.

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